A NEW SPECIES OF *ACRODIPSAS* SANDS (LEPIDOPTERA: LYCAENIDAE) FROM THE NORTHERN TERRITORY

C.G. MILLER and D.A. LANE

PO Box 336, Lennox Head, NSW 2478

3 Janda St, Atherton, Qld 4883

Abstract

Acrodipsas decima sp. n. is described, figured and recorded from the Northern Territory. It is compared with the closely related *A. hirtipes* Sands from northern Queensland and is assigned to the *illidgei* species group based on leg structure.

Introduction

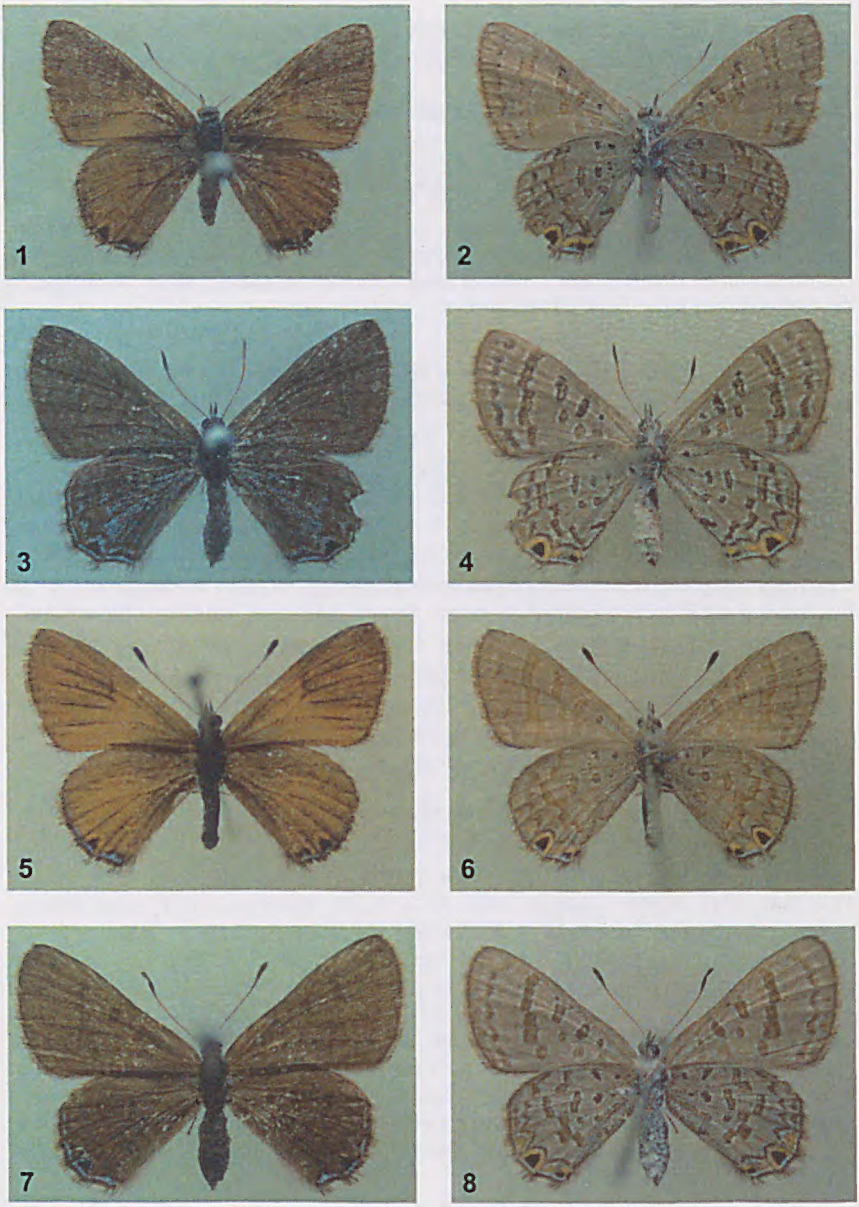
The genus *Acrodipsas* Sands currently contains nine species, divided into two groups based on leg structure (Miller and Edwards 1978, Sands 1979) - the *illidgei* group, with swollen fore and hind femora and mid tibia shorter than basitarsus, and the *myrmecophila* group, without swollen femora and mid tibia longer than basitarsus. Since 1991, specimens of a tenth species have been taken by several collectors, including the authors, on a hill known as Burrells Trig on the Daly River Road, south of Darwin in the Northern Territory. Although previously recognised by the authors as being close to, but having differences from *A. hirtipes* Sands from northeastern Queensland, the status of this species remained uncertain until recently. Noticeable differences in wing shape and pattern, as well as genitalia differences, coupled with the suggestion by Eastwood and Hughes (2003) that closer scrutiny was warranted due to significant DNA sequence divergence, allowed the separation of the two species to be made.

Acrodipsas decima sp. n.

(Figs 1-4, 9, 10, 13)

Types. Holotype ♂, NORTHERN TERRITORY: Burrells Trig, Daly River Road, 17.v.1991, C.G. Miller, genitalia slide ANIC18543. *Paratypes*: 1 ♀, same data as holotype but dated 18.v.1991, C.G. Miller, (both in Australian National Insect Collection, Canberra (ANIC)); 1 ♂, 1 ♀, same data but 8, 12.v.1991, C.G. Miller (in C.G. Miller collection); 1 ♂, Burrells Trig, 18.v.1991, J.W.C. d'Apice (in J.W.C. d'Apice collection); 2 ♂♂, Burrells Trig, 13.v.1991, D.N. Wilson; 1 ♂, same data but 24.iv.1991 (in ANIC); 1 ♂, 1 ♀, Mt Burrell, 24.iv.1995, D.A. Lane; 2 ♂♂, same data but 22.iii.1992, D.N. Wilson (in D.A. Lane collection); 2 ♂♂, same data but 6.ix.1992, 26.iii.1996, C.E. Meyer (in C.E. Meyer collection); 1 ♂, same data but 22.iv.1991, S.S. Brown (in S. Brown collection); 3 ♂♂, same data but 25.ii.1995, 12.xi.1995, R. Weir (in R. Weir collection); 1 ♂, same data but 1-8.v.1993, A.I. Knight (in T. Lambkin collection).

Male (Figs 1-2). Antennal length (holotype) 5.5 mm; dorsal surface of shaft dark brown with segmental bands pale yellow; club black basally narrowing towards orange apex. Head, palpus, thorax and abdomen dorsally dark brown with lighter brown hairs, ventrally pale grey. Forewing length (holotype) 11 mm; costa slightly bowed, apex pointed, termen weakly convex; upperside



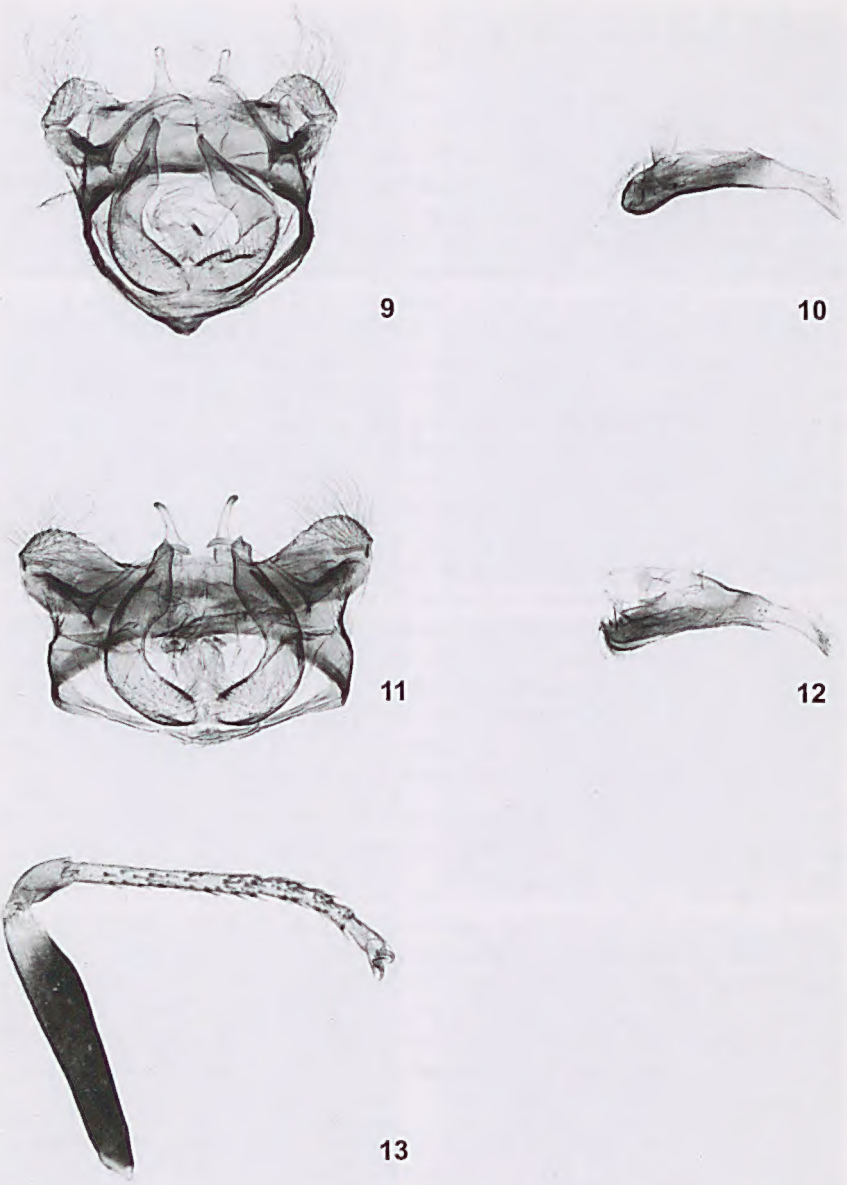
Figs 1-8. *Acrodipsas* species. (1) *A. decima* sp. n., paratype male, upperside; (2) same specimen, underside; (3) *A. decima* paratype female, upperside; (4) same specimen, underside; (5) *A. hirtipes* male, upperside; (6) same specimen, underside; (7) *A. hirtipes* female, upperside; (8) same specimen, underside.

apical two thirds brown with very faint brown terminal line; cilia brown with white tips; veins M_1 to 1A+2A and discocellulars with thin covering of black scales becoming fainter towards termen; basal third, extending along three quarters of inner margin but not to tornus, dull copper. Hindwing with termen convex, apex rounded; upperside between costa and CuA_1 brown, paler between CuA_1 and 1A+2A; an ill defined darker brown streak between 1A+2A and inner margin; a triangular black spot between CuA_1 and CuA_2 and a smaller semicircular black spot between CuA_2 and 1A+2A; very small and faint blue dusting along the basal sides of these spots; a more pronounced blue terminal line broken by veins between 1A+2A and CuA_1; cilia brown basally with white tips between veins, brown throughout at the veins, giving a dull chequered effect. Forewing underside pale grey-brown with brownish-white between postmedian and subterminal bands; a small subbasal band in cell, a broken submedian band and a partial median band between M_1 and M_3, and a straight, broad, prominent postmedian band, not parallel to submedian band, all orange-brown bordered then white; subterminal band darker brown with white borders parallel to termen. Hindwing underside pale grey brown; subbasal band consisting of a dark brown spot on $Sc+R_1$ and narrow orange band in cell; narrow median band between M_3 and CuA_2; prominent irregular postmedian band with sections displaced towards termen at M_2 and CuA_1, orange-brown bordered by dark brown then white, the white being most conspicuous between CuA_1 and 1A+2A; a short narrow black line between 1A+2A and inner margin; subterminal band crenulated, parallel to termen, separated from terminal line by orange patches between M_3 and 1A+2A; a prominent black spot in orange patch between CuA_1 and CuA_2 and small black spot at tornus; terminal line faint, pale grey.

Mid leg (Fig. 13, ANIC slide 18544) with fore and hind femora swollen and mid tibia shorter than the first tarsal segment.

Male genitalia (Figs 9-10, ANIC slide 18543). Vinculum + tegumen ring nearly circular; prominent blunt saccus; margin of tegumen slightly curved; lobe of sociuncus hirsute, broad and square with straight margin; uncus bifurcate with minimal divergence, tips blunt; brachium slender with apical section longer than basal section; valva with broad base strongly tapered to slender apical section pointed tip; aedeagus (Fig. 10) with prominently rounded pre-zonal sheath anteroventrally; post-zonal sheath slightly rounded beyond mid point.

Female (Figs 3-4). Antennal length 4.5 mm; colour of antennae similar to male; colour of head, palpi, thorax and abdomen black above, beneath greyish-white. Forewing length 10 mm; costa, termen and apex more rounded than in male; colour sooty black; cilia black with white at extreme tips. Hindwing more rounded than in male; upperside sooty black with dusting of blue scales between CuA_1 and 1A+2A extending towards termen; terminal line very faint and narrow, blue; a prominent black spot between CuA_1 and



Figs 9-13. *Acrodipsas* species. (9) male genitalia of *A. decima* sp. n., holotype male, ANIC slide 18543; (10) aedeagus of holotype male, ANIC slide 18543; (11) male genitalia of *A. hirtipes*, ANIC slide 18542; (12) aedeagus of *A. hirtipes*, ANIC slide 18542; (13) mid leg of *A. decima*, ANIC slide 18544.

CuA_2, edged orange; other less prominent black spots between M_3 and 1A+2A narrowly edged blue; cilia background colour slightly darker with bands darker and more conspicuous. Hindwing underside as in male but with bands darker and more clearly defined on a slightly darker background; area between postmedian and subterminal bands more grey than in male.

Etymology. Named as the tenth known species of *Acrodipsas*.

Discussion

Acrodipsas decima is presently known from a single hilltop, 57 km E of Daly River in the Northern Territory. Adult hilltopping behaviour is typical of the genus as described by Sands (1979), with males arriving towards midday and females arriving in the early afternoon. Like other members of the genus, set specimens of *A. decima* are prone to become greasy.

A. decima may be distinguished from *A. hirtipes* (Figs 5-8, 11, 12) by noticeable differences in the antennae, wing shape, colour and band position, and distinct differences in the male genitalia. In *A. decima* males the tip of the forewing apex is more prolonged and pointed than in *A. hirtipes* and the termen is straighter. The shape of the hind wing is deeper and more rounded than in *A. hirtipes*, but not as square as in *A. melania* Sands. Similar, although less pronounced, differences exist in the wing shape of the females. The colour in the male upper side of *A. decima* is generally darker with the black dusting on the discal veins seen in *A. hirtipes* not as evident. Beneath, male *A. decima* are greyish-brown whereas those of *A. hirtipes* are darker brown. In *A. decima* the postmedian band is broader, straighter and closer to the subterminal band than in *A. hirtipes*; it approaches even more closely to the subterminal band towards the inner margin, whereas in *A. hirtipes* the two bands are parallel. The relative position of these bands on the hindwing underside is similar to those on the forewing. All bands in *A. decima* are more strongly edged white than in *A. hirtipes*. The male genitalia of *A. decima* (Figs 9-10) differ significantly from those of *A. hirtipes* (Figs 11-12). The shape of the vinculum + tegumen ring is much more rounded in *A. decima*, with the saccus more prominent and the sociuncus lobe less rounded and more square than in *A. hirtipes*. The uncus in *A. decima* is less divergent and straighter with squared tips. The brachium in *A. decima* is shorter and less curved towards the apex. The pre-zonal sheath of the aedeagus in *A. decima* is also more prominent and rounded than in *A. hirtipes*. Although variable in extent, the three known females of *A. decima* all have blue dusting on the hindwing upperside, whereas no blue is found on the hindwing of any of the known females of *A. hirtipes*. The sooty black background colour is similar on the female uppersides of both species.

Braby (2000), under his discussion of variation in *A. hirtipes,* also refers to the differences in wing shape in specimens from Burrells Trig, N.T.

DNA studies conducted on *Acrodipsas* by Eastwood and Hughes (2003) showed a 1.03% sequence divergence between *A. decima* and *A. hirtipes*, compared with 0.8% divergence between *A. illidgei* (Waterhouse & Lyell) and *A. arcana* (Miller & Edwards).

The leg structure of *A. decima* places it in the *illidgei* group of *Acrodipsas*, along with *A. hirtipes, A. melania*, *A. arcana* and *A. mortoni* Sands, Miller & Kerr (Miller and Edwards 1978, Sands 1979, Sands *et al.* 1997). The small number of specimens of *A. decima* currently known (16 males, 3 females) is considered due to its irregular appearance at a single remote locality.

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